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EXAMINER	
SHIN, MARC L	

ART UNIT	PAPER NUMBER
2836	

DATE MAILED: 10/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/072,755	ZECCA ET AL.	
	Examiner	Art Unit	
	Marc L Shin	2836	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 July 2002*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-53* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22,25-38,40-50,52 and 53* is/are rejected.

7)☒ Claim(s) *23,24,39 and 51* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *7/18/02*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> **(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.**

Claim 1 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Becker et al (6,175,789 B1) in view of Ives et al (6,661,334 B1).

Becker et al discloses:

- Beckert et al discloses a vehicle computer system that has a housing sized to be mounted in a vehicle dashboard (2:11-13).
- The vehicle computer system has three modules: a support module, a faceplate module, and a computer module (2:31-33).
- In Fig 2, the support module (62) is also connected to a universal serial bus hub (70) via a multi-bit connector (72). The USB hub provides connections to many peripheral devices (5:28-31). The multi-bit connector (72) reads on the connection port.
- The support module (62) has several hardware interfaces. A USB interface (92) is driven from the PCI bus (66) and provides the interconnection to the various USB peripherals shown in Fig 2. (5:55-59).
- The support module (62) and faceplate module (60) are interconnected via a high speed serial interface (68) which supports high speed, serial data communication

(5:22-25). The high speed serial interface (68) reads on the data communication cable.

- The vehicle battery (32) reads on the power source (see Fig 9).

Becker et al does not disclose:

- vehicle assembly characterized by a modular connector supported by said housing and electrically connected to said power source,
- modular connector supported by said housing and electrically connected to said power source
- modular connector including a plurality of identical slots
- plurality of modules and said interface module being electrically connected to any one of said identical slots to transfer data between said modules and to provide electrical power to at least one of said modules
- Thereby facilitating communication with the peripheral devices and providing electrical power to at least one of the peripheral devices within said vehicle assembly.

Ives et al teaches:

- A modular connector supported by housing and electrically connected to power source (see Fig 1)
- The modular connector includes a plurality of identical slots (8-11) (see Fig 1)

- Modules can be connected to the slots within the chassis. The chassis supports an electrical board or plane (122). The plane is used to communicate electrical power to the modules, as well as communicate data to and from the modules (col 5, lines 3-10).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the vehicle computer system of Beckert et al to include the modular connector supported by housing and electrically connected to power source, modular connector including a plurality of identical slots, and modules connected to the slots within the chassis, the chassis supporting an electrical board or plane, and the plane used to communicate electrical power to the modules, as well as communicate data to and from the modules, as taught by Ives et al. The motivation would have been to utilize the verification features of the verification system for the purpose of enhancing the security of the vehicle computer system.

Claims 2 – 4, 27-28 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Beckert et al in view of Ives et al (6,661,334 B1).

Regarding claim 2, Beckert et al et al discloses a vehicle assembly for use with a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 1 above. Becker et al does not disclose that the modular connector transfers electrical

power to interface module. Ives et al teaches a module connector (116) configured to mate with a plane connector (124) to communicate electrical power to the modules (5:5-16). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Becker et al to include a module connector (116) configured to mate with a plane connector (124) to communicate electrical power to the modules, as taught by Ives et al. The motivation would have been to provide a means for providing power to each module for the purpose of powering up several peripheral devices.

Regarding claim 3, Ives et al teaches a module connector (116) configured to mate with a plane connector (124) to communicate electrical power to the modules (5:5-16).

Regarding claim 4, Ives et al teaches an array (510) of Fig 9 that further includes a power supply module (514), for supplying power to peripheral devices (10:1-5).

Regarding claim 27, Ives et al teaches that an array "A" of the system (2) is connected to the controller "C" by cable (4), and array "B" is connected to the controller "C" by cable (18).

Regarding claim 28, Ives et al teaches a second housing along with a second memory array "B", a second power source, and a second modular connector with the second housing being connected to first housing through the data communication cable (see Fig 1).

Claims 5-10 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Beckert et al, Ives et al, and Pomatto (5,179,376). Beckert et al and Ives et al discloses a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 4 above. Beckert et al and Ives et al do not disclose that the power distributor draws:

- (claim 5) up to 5 amps of electrical power from modular connector
- (claim 6) up to 7.5 amps of electrical power from modular connector
- (claim 7) up to 10 amps of electrical power from modular connector
- (claim 8) up to 15 amps of electrical power from modular connector
- (claim 9) up to 20 amps of electrical power from modular connector
- (claim 10) up to 30 amps of electrical power from modular connector

Pomatto teaches a power distributor that draws 0-5 amps of current from a modular connector (143) (See Fig 2). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Beckert et al and Ives et al to include a power distributor that draws 0-5 amps of current from a modular connector (143), as taught by Pomatto. The motivation would have been to protect a modular connector from drawing current that exceeds its current rating.

Claim 11 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Beckert et al, Ives et al, and Potega (6,459,175 B1).

Beckert et al and Ives et al disclose a vehicle assembly for use with a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 4 above. Beckert et al and Ives et al do not disclose that at least one of the plurality of modules includes a switch for controlling transfer of electrical power to the associated device. Potega teaches a removable power supply module that detects power requirements of an electrical device and configures and configures itself to provide the correct power to the device (see Abstract). Potega further teaches a controllable regulator (745) that can switch its power to a supplied device (741) (col 22, lines 16-18).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Beckert et al and Ives et al to include a removable power supply module that detects power requirements of an electrical device and configures and configures itself to provide the correct power to the device with a controllable regulator that can switch its power to a supplied device, as taught by Potega. The motivation would have been to provide a means for allowing a user to shut off power to the peripheral device in the event of a fire.

Claims 12 –13 are rejected under 35 U.S.C 103 (a) as being unpatentable over Beckert et al, Ives et al, and Reardon (5,434,562).

Regarding claim 12, Beckert et al and Ives et al disclose a vehicle assembly for use with a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 1 above. Beckert et al and Ives et al do not disclose that at least one of the plurality of modules includes a switch for controlling an associated device.

Reardon teaches user accessible switches that inhibit power or control lines to the peripheral devices (see Abstract). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Beckert et al and Ives et al to include the user accessible switches, as taught by Reardon. The motivation would have been for controlling the transfer of electrical power.

Regarding claim 13, Reardon teaches that the switches can be a plurality of switches (see Abstract).

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beckert et al, Ives et al, and Yang (5,999,798). Beckert et al and Ives et al disclose a vehicle assembly for use with a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 1 above. Beckert et al and Ives et al do not disclose

that at least one of plurality of modules includes a sensing receiver for receiving electrical signals from an associated peripheral device. Yang teaches a circuit for receiving and transmitting signals to and from an associated peripheral device (col 1, lines 33-39).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Beckert et al and Ives et al to include a circuit for receiving and transmitting signals to and from an associated peripheral device, as taught by Yang. The motivation would have been to allow data communication between modular power control apparatuses to be processed via the peripheral devices.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Beckert et al, Ives et al, and Okamura et al (6,490,515 B1). Beckert et al and Ives et al disclose a vehicle assembly for use with a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 1 above. Beckert et al and Ives et al do not disclose that at least one of plurality of modules includes a pressure receiver for receiving pressure sensing signals from an associated peripheral device. Okamura et al teaches a passenger detecting apparatus that determines the presence of a passenger or an object through a pressure sensitive sensor (see Abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Beckert et al and Ives et al

to include a passenger detecting apparatus that determines the presence of a passenger or an object through a pressure sensitive sensor, as taught by Okamura et al. The motivation would have been to provide a means for estimating the weight of a passenger or determining the build of a passenger, thereby improving the usability of peripheral devices of a seat.

Claim 16 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beckert et al, Ives et al, and Hawes et al (6,062,903). Regarding claim 16, Beckert et al and Ives et al disclose a vehicle assembly for use with a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 1 above. Beckert et al and Ives et al do not disclose that at least one of plurality of modules includes a secondary connector electrically connected to power source for providing an additional power supply associated to a peripheral device. Hawes et al teaches a circuit board with a plurality of connector pins including first and second connector pins formed on the circuit board (col 5, lines 10-15).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Beckert et al and Ives et al to include a circuit board with a plurality of connector pins including first and second connector pins formed on the circuit board, as taught by Hawes et al. The motivation would have been to provide a means for providing power from a secondary power

source, in order to provide a backup power source to a peripheral device in the event that the power control apparatus is shut down.

Regarding claim 26, Hawes et al teaches that the connector is defined as a circuit board (col 5, lines 10-15).

Claims 17 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beckert et al, Ives et al, and Bertram et al (6,301,528 B1).

Regarding claim 17, Beckert et al and Ives et al disclose a vehicle assembly for use with a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 1 above. Beckert et al and Ives et al do not disclose that the power source defines a maximum power level. Bertram et al teaches a method and an arrangement for controlling electrical consumers (reads on modules) in a vehicle in which a maximum permissible peak power is allocated to the individual vehicle components in dependence upon the priority and the adjustability of peak power (col 5, lines 3-10). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Beckert et al and Ives et al to include a method and an arrangement for controlling electrical consumers (reads on modules) in a vehicle in which a maximum permissible peak power is allocated to the individual vehicle components in dependence upon the priority and the adjustability of peak power, as taught by Bertram et al. The motivation would have been to prevent a

dangerous situation in which the power source supplies current exceeding of the current rating of the modular connector.

Regarding claim 20, Ives et al teaches an array (510) of Fig 9 further includes a power supply module (514), for supplying power to peripheral devices (10:1-5). The array (510) that includes a power supply module (514) reads on a power distributor for transferring electrical power from connector to an associated peripheral device.

Claims 18 - 19 are rejected under 35 U.S.C. 103 (a) as being unpatentable over Beckert et al, Ives et al, Bertram et al, and Brown (5,684,450).

Regarding claim 18, Beckert et al, Ives et al, and Bertram et al disclose a vehicle assembly for use with a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 17 above. Beckert et al, Ives et al, and Bertram et al do not disclose that the maximum power level is 100 amps. Brown teaches a power source where the maximum power level is 100 amps for normal usage (col 6, lines 22-25). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Beckert et al, Ives et al, and Bertram et al with the power source that defines a maximum power level of 100 amps, as taught by Brown. The motivation would have been to have the power source match a 100 amp electrical power requirement of an associated device.

Regarding claim 19, the maximum power level of 100 amps taught by Brown reads on the limitation "maximum power level of 150 amps".

Claims 21-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Beckert et al, Ives et al, Bertram et al, and Pohjola (6,472,770 B1).

Regarding claim 21, Beckert et al, Ives et al, and Bertram et al disclose a vehicle assembly for use with a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 20 above. Beckert et al, Ives et al, and Bertram et al do not disclose that an electrical draw by the power distributor of an associated module does not exceed the maximum power level and matches a particular power requirement of an associated peripheral device. Pohjola teaches an intelligent current distribution system for vehicles for supplying current to loads (see Abstract) including an upper limit for a current picked up by a load (col 4, lines 18-20), which reads on an electrical draw not exceeding a maximum power level.

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Beckert et al, Ives et al, and Bertram et al to include the current distribution system of Pohjola so that an associated module does not exceed maximum power level and matches a particular power requirement of an associated peripheral device, as taught by Pohjola. The motivation

would have been to prevent damage to the peripheral device which could be incurred if power is provided to the device that exceeds the power requirements of the device.

Regarding claim 22, Pohjola teaches that the combination of electrical draws by a combination of power distributors of modules has an upper and lower limit (col 4, lines 15-20), which reads on a maximum power level.

Claim 25 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Beckert et al, Ives et al (6,661,334 B1), and Pavarotti et al (5,644,304).

Beckert et al et al and Ives et al disclose a vehicle assembly for use with a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 1 above. Becker et al and Ives et al do not disclose that the power supply provides a maximum of one amp to a connected peripheral device.

Pavarotti et al teaches a power supply that provides a maximum of one amp to a peripheral device (col 7, lines 31-35). It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus to include a power supply that supplies a maximum of one amp of power, as taught by Pavarotti. The motivation would have been to prevent damage to the peripheral device which could be incurred if power is provided to the device that exceeds the power requirements of the device.

Claim 29 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Ives et al (6,661,334 B1) in view of Pohjola (6,469,404 B1). Ives et al discloses:

- a modular power control apparatus with a plurality of peripheral devices, said apparatus comprising (col 4, line 66 – col 5 line 20)
- From Figure 1, an array of slots contained in a housing.
- The array is able to receive a plurality of modules (col 5, lines 1-3)
- A power source in the form of auxiliary modules (8,9,10,11) connected to the housing (see Array A, Fig 1).

Ives et al does not disclose:

- a) A connection port extending from each of said modules for electrically connecting each module to an associated peripheral device
- b) An interface module supported by said housing and having a communication processor to selectively interface with said plurality of modules for routing data to an appropriate module and peripheral device;
- c) A data communication cable connected to said interface module and disposed outside of said housing for transferring data between said interface module and anyone of a variety of devices; and
- d) apparatus characterized by a modular connector supported by said housing and electrically connected to said power source,
- e) modular connector including a plurality of identical slots,

- f) plurality of modules and said interface module being electrically connected to any one of said identical slots to transfer data between said modules and to provide electrical power to at least one of said modules, thereby facilitating communication with the peripheral devices and providing electrical power to at least one of the peripheral devices

Pohjola teaches:

- a) connecting sockets (3) extending from each of the junction modules (2) for electrically connecting each junction module (2) to an associated actuator (7), which (see Fig 1) reads on a peripheral device
- b) an interface module (2) having a processor (19) to interface with the plurality of modules for routing data to the appropriate module and peripheral device (col 4, lines 7-14)
- c) a data communication cable (4) connected to the interface module (2) for transferring data between the interface module (2) and anyone of a variety of devices (col 3, lines 10-30)
- d) Fig 1 shows a modular connector connecting from the battery (7) to the junction module (2)
- e) Fig 1 shows a modular bus (1-8) with identical slots for each junction module (2). This modular bus reads on modular connector.
- f) Fig 1 shows a plurality of junction modules (2) and an interface module (2) connected to the slots of the modular bus to transfer data between modules and

provide power to at least one of the modules thereby facilitating communication with peripheral devices and providing electrical power to at least one of the peripheral devices (col 3, lines 15 – 30).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Ives et al to include the features listed above, as taught by Pohjola. The motivation would have been to utilize expandability or reducibility of Pohjola that consist of a module composed central unit, where the modules are specified for cable branches but connected to a common communication bus for transmitting messages between the cable branches (col 1, lines 46-52).

Regarding claim 30, Fig 1 of Pohjola shows that the modular bus connector (Bus 1-8) transfers electrical power to interface module (upper most junction module) as well as the remaining junction modules beneath the upper most junction module (also see col 3, lines 10-30).

Regarding claim 31, Fig 1 of Pohjola shows that each junction module (2) distributes power through a cable branch (4) to a load device.

Regarding claim 33, Pohjola teaches current switches present in the connecting sockets and control electronics for controlling transfer of electrical power to the peripheral devices (col 1, lines 13-15).

Regarding claim 34, Pohjola teaches communication elements of the ring bus (9), such as receivers (2r) and transmitters (2t), that are arranged partially or entirely on a mounting base module (33) for junction modules.

Regarding claims 37 and 38, Pohjola teaches that several cable branches are dictated by safety regulations as well as a limit set by the maximum current acceptable in a cable (col 4, lines 58-60). This reads on a maximum power level for the modular connector as well as the combination of modules not exceeding a maximum power level.

Regarding claim 40, Ives et al teaches a second housing along with a second memory array "B", a second power source, and a second modular connector with the second housing being connected to first housing through the data communication cable (see Fig 1).

Claim 32 is rejected under 35 U.S.C 103 (a) as being unpatentable over Ives et al, Pohjola (6,469,404 B1), and Colbrese (4,507,720). Ives et al and Pohjola discloses a modular power control apparatus, as discussed in claim 31 above. Ives et al and Pohjola do not disclose that the power distributor draws up to 30 amps of electrical power from the modular connector. Colbrese teaches a system for utilizing the electrical system of a vehicle to provide electrical power for automotive use, and includes a current limiting means (44) inserted with one electrical conductor of the output cable (18), that comprises an appropriate fuse or circuit breaker designed to limit

the output current to a predefined maximum, such as 20 amps (see Fig 3, Abstract, and col 6, lines 24-29).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Ives et al and Pohjola to include a current limiting means, as taught by Colbrese. The motivation would have been to protect the modular connector from exceeding its maximum current rating.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ives et al, Pohjola (6,469,404 B1), and Okamura et al (6,490,515 B1). Ives et al and Pohjola disclose a vehicle assembly for use with a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 29 above. Ives et al and Pohjola do not disclose that at least one of plurality of modules includes a pressure receiver for receiving pressure sensing signals from an associated peripheral device. Okamura et al teaches a passenger detecting apparatus that determines the presence of a passenger or an object through a pressure sensitive sensor (see Abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Ives and Pohjola et al to include a passenger detecting apparatus that determines the presence of a passenger or an object through a pressure sensitive sensor, as taught by Okamura et al. The motivation would have been to provide a means for estimating the weight of a

passenger or determining the build of a passenger, thereby improving the usability of peripheral devices of a seat.

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ives et al, Pohjola (6,469,404 B1), and Hawes et al (6,062,903). Regarding claim 16, Ives et al and Pohjola disclose a vehicle assembly for use with a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 29 above. Ives et al and Pohjola do not disclose that at least one of plurality of modules includes a secondary connector electrically connected to power source for providing an additional power supply associated to a peripheral device. Hawes et al teaches a circuit board with a plurality of connector pins including first and second connector pins formed on the circuit board (col 5, lines 10-15).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Ives et al and Pohjola to include a circuit board with a plurality of connector pins including first and second connector pins formed on the circuit board, as taught by Hawes et al. The motivation would have been to provide a means for providing power from a secondary power source, in order to provide a backup power source to a peripheral device in the event that the power control apparatus is shut down.

Claim 41 is rejected under 35 U.S.C. 103 (a) as being unpatentable over Ives et al in view of Pohjola (6,469,404 B1). Ives et al discloses:

- a modular power control apparatus with a plurality of peripheral devices, said apparatus comprising (col 4, line 66 – col 5 line 20)
- From Figure 1, an array of slots contained in a housing.
- The array is able to receive a plurality of modules (col 5, lines 1-3)

Ives et al does not disclose:

- a) A connection port extending from each of said modules for electrically connecting each module to an associated peripheral device
- b) An interface module supported by said housing and having a communication processor to selectively interface with said plurality of modules for routing data to an appropriate module and peripheral device;
- c) A data communication cable connected to said interface module and disposed outside of said housing for transferring data between said interface module and anyone of a variety of devices; and
- d) apparatus characterized by a modular connector supported by said housing and electrically connected to said power source,
- e) modular connector supported by said housing and electrically connected to each of said modules for transferring data between said modules;

- f) a plurality of peripheral devices with each of said peripheral devices electrically connected to said connection port of an associated module wherein said peripheral devices communicate with said interface module through said associated module and said modular connector;
- g) said system characterized by at least one of said peripheral devices also being directly connected to said data communication cable independent from said connection to said associated module such that said one peripheral device communicates directly with said data communication cable outside of said housing independent of said interface module

Pohjola teaches:

- a) connecting sockets (3) extending from each of the junction modules (2) for electrically connecting each junction module (2) to an associated actuator (7), which (see Fig 1) reads on a peripheral device
- b) an interface module (2) having a processor (19) to interface with the plurality of modules for routing data to the appropriate module and peripheral device (col 4, lines 7-14)
- c) a data communication cable (4) connected to the interface module (2) for transferring data between the interface module (2) and anyone of a variety of devices (col 3, lines 10-30)

- d) Fig 1 shows a modular connector connecting from the battery (7) to the junction module (2)
- e) Fig 1 shows a modular bus (1-8) with identical slots for each junction module (2). This modular bus reads on modular connector.

f) Fig 1 shows a plurality of junction modules (2) and an interface module (2) connected to the slots of the modular bus to transfer data between modules and provide power to at least one of the modules thereby facilitating communication with peripheral devices and providing electrical power to at least one of the peripheral devices (col 3, lines 15 – 30).

g) Fig 1 shows that the intelligent socket (3) is directly connected to the cable branch (4)

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Ives et al to include the features listed above, as taught by Pohjola. The motivation would have been to utilize expandability or reducibility of Pohjola that consist of a module composed central unit, where the modules are specified for cable branches but connected to a common communication bus for transmitting messages between the cable branches (col 1, lines 46-52).

- Regarding claim 42, Fig 1 of Pohjola shows that the modular bus connector (Bus 1-8) transfers electrical power to interface module (upper most junction module) as well

as the remaining junction modules beneath the upper most junction module (also see col 3, lines 10-30).

Regarding claim 43, Fig 1 of Pohjola shows that each junction module (2) distributes power through a cable branch (4) to a load device.

Claim 44 is rejected under 35 U.S.C 103 (a) as being unpatentable over Ives et al, Pohjola (6,469,404 B1), and Colbrese (4,507,720). Ives et al and Pohjola discloses a modular power control apparatus, as discussed in claim 43 above. Ives et al and Pohjola do not disclose that the power distributor draws up to 30 amps of electrical power from the modular connector. Colbrese teaches a system for utilizing the electrical system of a vehicle to provide electrical power for automotive use, and includes a current limiting means (44) inserted with one electrical conductor of the output cable (18), that comprises an appropriate fuse or circuit breaker designed to limit the output current to a predefined maximum, such as 20 amps (see Fig 3, Abstract, and col 6, lines 24-29).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Ives et al and Pohjola to include a current limiting means, as taught by Colbrese. The motivation would have been to protect the modular connector from exceeding its maximum current rating.

Regarding claim 45, Pohjola teaches current switches present in the connecting sockets and control electronics for controlling transfer of electrical power to the peripheral devices (col 1, lines 13-15).

Regarding claim 46, Pohjola teaches communication elements of the ring bus (9), such as receivers (2r) and transmitters (2t), that are arranged partially or entirely on a mounting base module (33) for junction modules.

Regarding claims 49 and 50, Pohjola teaches that several cable branches are dictated by safety regulations as well as a limit set by the maximum current acceptable in a cable (col 4, lines 58-60). This reads on a maximum power level for the modular connector as well as the combination of modules not exceeding a maximum power level.

Regarding claim 52, Ives et al teaches a second housing along with a second memory array "B", a second power source, and a second modular connector with the second housing being connected to first housing through the data communication cable (see Fig 1).

Regarding claim 53, Pohjola teaches that the peripheral devices are connected to a central branch by a first cable branch, and connected to a communication bus (4/17) by a second cable (col 8, lines 30-45).

Claim 47 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ives et al, Pohjola (6,469,404 B1), and Okamura et al (6,490,515 B1). Ives et al and Pohjola disclose a vehicle assembly for use with a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 41 above. Ives et al and Pohjola do not disclose that at least one of plurality of modules includes a pressure receiver for

receiving pressure sensing signals from an associated peripheral device. Okamura et al teaches a passenger detecting apparatus that determines the presence of a passenger or an object through a pressure sensitive sensor (see Abstract).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Ives and Pohjola et al to include a passenger detecting apparatus that determines the presence of a passenger or an object through a pressure sensitive sensor, as taught by Okamura et al. The motivation would have been to provide a means for estimating the weight of a passenger or determining the build of a passenger, thereby improving the usability of peripheral devices of a seat.

Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ives et al, Pohjola (6,469,404 B1), and Hawes et al (6,062,903). Regarding claim 16, Ives et al and Pohjola disclose a vehicle assembly for use with a modular power control apparatus and a plurality of peripheral devices with peripheral devices controlling one or more features of the vehicle assembly, as discussed in claim 41 above. Ives et al and Pohjola do not disclose that at least one of plurality of modules includes a secondary connector electrically connected to power source for providing an additional power supply associated to a peripheral device. Hawes et al teaches a circuit board with a plurality of connector pins including first and second connector pins formed on the circuit board (col 5, lines 10-15).

It would have been obvious to one of ordinary skill in the art at the time of the invention to modify the modular power control apparatus of Ives et al and Pohjola to include a circuit board with a plurality of connector pins including first and second connector pins formed on the circuit board, as taught by Hawes et al. The motivation would have been to provide a means for providing power from a secondary power source, in order to provide a backup power source to a peripheral device in the event that the power control apparatus is shut down.

Allowable Subject Matter

2. Claims 23-24, 39, 51 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement for reasons for allowance:

Regarding claim 23, the electrical draw by power distributor from any one slot of an associated module not exceeding 30 amps, in the combination as claimed is not disclosed in the prior art of record.

Regarding claim 24, the plurality of modules connected in two or more slots to increase available electrical power input to an associated module, in the combination as claimed is not disclosed in the prior art of record.

Regarding claim 39, the plurality of modules connected in two or more slots to increase available electrical power input to an associated module, in the combination as claimed is not disclosed in the prior art of record.

Regarding claim 51, the plurality of modules connected in two or more slots to increase available electrical power input to an associated module, in the combination as claimed is not disclosed in the prior art of record.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc L Shin whose telephone number is 571-272-2267. The examiner can normally be reached on M - F 8AM - 5PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Brian Sircus can be reached on 571-272-2800 ext 36. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Stephen W Jackson
10-15-04

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